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COMMENTS

PATENTS AND COMPUTER PROGRAMS— THE SUPREME COURT MAKES A DECISION

The issues surrounding patent protection for computer programs, or "software" as they are referred to in the computer industry, have been the subject of considerable discussion in recent years.¹ The United States Supreme Court, with its recent decision in the case of *Gottschalk v. Benson*,² added a new chapter to the controversy concerning the protection of computer programs through patent laws. In this case the Court for the first time dealt with the problems involved in legal protection for programs as invented items, an area of controversy which has been characterized as the "most perplexing and serious problem ever to confront patent and copyright law policy makers."³

In order to facilitate a discussion of the legal dispute which has emerged over the inclusion of programs as patentable items and in order to understand both previous lower court decisions and the Supreme Court's ruling in *Gottschalk v. Benson*, it is necessary to gain some basic knowledge of computers, computer programs and the computer industry.

Computers, Programs and the Computer Industry

A computer, often referred to as "hardware" in the industry, is basically a general problem-solving device. It operates by "accepting data, performing prescribed operations on the data, and supplying the results of these operations."⁴ One form of computer, the digital computer, deals with data in the form of numerical representations. An

¹ For a good general background concerning patent protection for computer programs see, Bender, *Computer Programs: Should They be Patentable?*, 68 COLUM. L. REV. 241 (1968); COMPUTERS-IN-LAW INSTITUTE NATIONAL LAW CENTER, GEO. WASH. UNIV., LAW OF SOFTWARE (1968) [hereinafter cited as 1968 PROCEEDINGS]; COMPUTERS-IN-LAW INSTITUTE NATIONAL LAW CENTER, GEO. WASH. UNIV., LAW OF SOFTWARE: CHANGING STRUCTURE AND INVESTMENT PATTERNS IN THE COMPUTER INDUSTRY OCCASIONED BY SOFTWARE LEGAL DEVELOPMENTS (1969) [hereinafter cited as 1969 PROCEEDINGS]; and PATENT RESOURCES GROUP, SOFTWARE PROTECTION BY TRADE SECRET CONTRACT PATENT (1969).

² 409 U.S. 63 (1972).

³ Buckman, *Protection of Proprietary Interests in Computer Programs*, 51 J. PAT. OFF. SOC'Y 135 (1969).

⁴ ABA STANDING COMM. ON LAW AND TECHNOLOGY, COMPUTERS AND THE LAW 186 (2d ed. 1969). This book serves as a good handbook on computers for the attorney.

analog computer, on the other hand, operates with data represented as physical quantities and computes by "measuring" these quantities rather than by "counting" numbers as the digital computer does.⁵

The computer program may be thought of as "instructions" to the computer on how to solve a program. Actually the program controls the transfer of data within the computer, directing the performance and function of the mechanism.⁶ This control element could be supplied by actual physical rewiring of the computer each time a particular problem is to be solved, but this would be inefficient and costly. Through the introduction of a computer program the computer can be automatically "rewired."⁷ Thus, the program is more than mere "instructions" since it in effect *restructures* the computer to solve a particular problem by varying circuits and so on, without requiring an actual manual rewiring of the machine. These functions of computer programs have led to their characterization as "instant hardware"⁸ or as automatic "softwiring"⁹ for computers since the introduction of a program essentially redesigns the computing mechanism.

As a reflection of the importance of computers in the modern world, it is estimated that as of 1972 there were some 80,000 computers in operation in this country and that by 1975 this number would reach 140,000, involving a work force of 2,230,000 Americans.¹⁰ The value of the computers and programs now in operation has been estimated to be in the area of \$30 billion.¹¹

The business of developing computer programs has, like the computer hardware industry, grown rapidly. Unlike the "hardware" industry, which is dominated by large corporations, such as IBM, the "software" industry is composed of many small concerns which specialize in the production of programs. The amount spent by com-

⁵ *Id.* at 26-34. See also Puckett, *The Limits of Copyright and Patent Protection for Computer Programs*, 16 ASCAP COPYRIGHT LAW SYMPOSIUM 81, 136 (1968).

⁶ 21 CATH. U.L. REV. 181, 182 (1971).

⁷ Puckett, *supra* note 5, at 137. See also, Kayton, *Patent Protectability of Software: Background and Current Law*, in 1968 PROCEEDINGS at B-25.

⁸ Kayton, *supra* note 7, at B-35, 36.

⁹ Jacobs, *Patentable Machines—Systems Embodiable in Hardware or Software*, 1968 PROCEEDINGS at B-77-81. Other important articles by Jacobs in this field include: *Computer Technology (Hardware and Software): Some Legal Implications for Anti-trust, Copyright and Patents*, 1972 RUTGERS J. OF COMPUTERS AND THE LAW 50; and *Patent Protection of Computer Programs*, 47 J. PAT. OFF. SOC'Y 6 (1965). These articles along with Kayton's article, *supra* note 7, provide a good insight into the technological nature of computer programs and how they relate to the present patent statutes.

¹⁰ Allen, *The Computer Bandit*, The Louisville Courier-Journal and Times, March 18, 1973, (Magazine), at 11. This article discusses another significant problem in the computer industry—the stealing of computer information.

¹¹ *Supra* note 6, at 183.

puter users for programs is quite high. In the next several years it has been estimated that up to \$15 billion will be expended by users for programs.¹²

Despite the rapid growth of the software industry, certain problems have arisen.¹³ The cost of developing a program is often high. Further, because of the need for new and innovative programs, there is a demand for continuing investment in program production, an investment which would become worthless however if the programs developed could not be marketed. The marketability of a program, in turn, depends largely upon a company's ability to control its distribution and use. This need for control results in a demand for some form of legal protection which would serve to promote competition and efficient utilization of programming resources.¹⁴

The majority of those offering opinions, from IBM to the smaller software houses, and from the Patent Office to the American Bar Association, seem to agree that some form of protection is essential.¹⁵ Dispute arises, however, when the discussion turns to the subject of what sort of protection should be offered for programs. The points of controversy center in the availability of patent protection, the adequacy of other forms of protection now available in the form of trade secret law¹⁶ and copyright law,¹⁷ and the need to devise a new form of protection specifically tailored to computer programs.

¹² COMPUTERWORLD, Nov. 29, 1972, at 4.

¹³ For a good general outline of the problems and need for protection, see Bender, *supra* note 1.

¹⁴ Bender, *supra* note 1, at 245-47.

¹⁵ For IBM's attitude see Doud, *The Business of Software and its Protection*, 1969 PROCEEDINGS at P-1. IBM has not supported patent protection for programs in general. Rather, it has proposed a special form of protection which is discussed in the text accompanying notes 123-24 *infra*.

Another area of conflict with IBM is in the area of so-called "tie in" arrangements. In such agreements, IBM contracts with computer purchasers to supply programs, thus cutting off software companies from potential sales. It has been claimed that this violates antitrust law. See Buckman, *supra* note 3, at 140-42.

¹⁶ For information about trade secret protection for programs, which is now the most widely employed sort of protection, see Bender, *Trade Secret Protection of Software*, 38 GEO. WASH. L. REV. 909 (1970); and Bender, *Post-Adkins Trade Secret Protection of Software*, 1970 RUTGERS J. OF COMPUTERS AND THE LAW 5. See also Orenbach, *Trade Secrets and the Patent Law*, 52 J. PAT. OFF. SOC'Y 638 (1970). Cases of importance include *Lear, Inc. v. Adkins*, 395 U.S. 653 (1969); *Sears Roebuck & Co. v. Stiffel Co.*, 376 U.S. 225 (1964); *Compco Corp. v. Day-Brite Lighting, Inc.*, 376 U.S. 234 (1964); and *Painton & Co. v. Bourns, Inc.*, 442 F.2d 216 (2d Cir. 1971).

One of the main problems with trade secret protection is that, by its nature, it requires that a program be kept secret, which can be difficult and which can hinder the general growth of the software industry.

¹⁷ For information about copyright protection for programs, see Breyer, *The Uneasy Case for Copyright: A Study of Copyright in Books, Photocopies, and Computer Programs*, 84 HARV. L. REV. 281 (1970); Galbi, *Proposals for New*

(Continued on next page)

Patent Protection—The Policy Controversy

The source of federal patent power is found in Article I of the United States Constitution which provides that Congress has the power, "to promote the Progress of Science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries."¹⁸ The objectives of the patent system, as formulated in Title 35 of the *United States Code*, are: 1) the development of a *uniform* patent system, 2) the encouragement of *invention* and 3) the preservation of *free competition* and public access by limiting what can be patented and for how long.¹⁹ The law provides for seventeen years of patent protection. The protection offered is for the item itself and for the underlying concepts involved and prevents those who independently make the same discovery from infringing upon the original inventor's patent. The law grants such protection, however, only for those inventions which meet a strict standard of novelty and utility and only in exchange for a full disclosure of the invention.²⁰

Those who support the idea of patent protection for computer programs feel that it is the most appropriate form of protection considering the technological nature of programs and their particular function as "instant hardware."²¹ Also, it is felt that this form of protection would most satisfactorily meet the basic needs of the computer program industry by providing an inclusive system of protection and thereby encouraging investment, invention, competition and disclosure.²²

In opposition to these assertions, several arguments are made. In 1966, the President's Commission on the Patent System specifically recommended the exclusion of computer programs from patent coverage.²³ In the Commission's view, because of the number of programs developed and their complexity, the Patent Office was not

(Footnote continued from preceding page)

Legislation to Protect Computer Programming, 17 BULL. COPYRIGHT SOC'Y 280 (1970); Iskrent, *The Impact of the Multiple Forms of Computer Programs on Their Adequate Protection by Copyright*, 18 ASCAP COPYRIGHT LAW SYMPOSIUM 92 (1970); and Puckett, *The Limits of Copyright and Patent Protection for Computer Programs*, 16 ASCAP COPYRIGHT LAW SYMPOSIUM 81 (1968).

¹⁸ U.S. CONST. art. 1, § 8, cl. 8.

¹⁹ *Sears Roebuck & Co. v. Stiffel Co.*, 376 U.S. 225, 228-31 (1964).

²⁰ 35 U.S.C. §§ 112, 154, 271 (1970).

²¹ See text accompanying notes 7-9 *supra*.

²² Bender, *supra* note 1, at 245-48.

²³ PRESIDENT'S COMMISSION ON THE PATENT SYSTEM, TO PROMOTE THE PROGRESS OF USEFUL ARTS 12, 13 (1966). [hereinafter cited as PRESIDENT'S COMMISSION REPORT].

equipped to handle applications for program patents. The major difficulties arose, the Commission felt, in the classification of programs as well as in the area of prior art since many programs had been developed in the past which the Patent Office would not have on file. Further, because the program industry had progressed without patent protection and because copyright protection for programs was available, the Commission concluded that patent protection simply was not needed. The Commission's recommendation resulted in an attempt in 1967 to statutorily exclude computer programs from patent coverage, but the effort failed.²⁴

It has been argued that to allow patents on programs, rather than fostering growth, would provide the basis for monopolistic control of the software industry.²⁵ Still other arguments have been made that the patent system's strict standards would prevent the majority of programs from being covered,²⁶ that the cost of obtaining a patent (around \$1,000) is prohibitively high, that the time required to secure a patent (2½-3 years) is so long that many programs would be obsolete by the time the patent was obtained and that it would be difficult to detect infringement.²⁷ Finally, it is felt that the patent system is inappropriate to deal with programs. The view is that the central objective of the patent system is to encourage *invention*, not merely protect investments, yet the software industry's chief desire is to protect its investments. If protection is to be available it should be specifically designed, many say, to meet this particular investment objective.²⁸

These arguments constitute the policy controversy for and against patent protection for computer programs. The law as it related to the protection of programs prior to the *Benson* decision reflected this policy controversy. The Patent Office initially took the position that patent coverage for programs was not available, but the Court of Customs and Patent Appeals reached a different conclusion.

²⁴ S. 1042, 90th Cong., 1st Sess. § 106 (1967); H.R. 5924, 90th Cong., 1st Sess. § 106 (1967). "A plan of action or set of operating instructions, in whatever form presented, to cause a controllable data processor or computer to perform selected operations shall not be patentable."

²⁵ Baker, *An Antitrust Look at Software Patents and Restraints*, 1969 PROCEEDINGS, at I-1, I-7; Comment, *Computer Programs and Proposed Revisions of the Patent and Copyright Law*, 81 HARV. L. REV. 1541 (1968).

²⁶ 1969 PROCEEDINGS at P-10.

²⁷ *Supra* note 6, at 189-90. It should be noted however that, while in general it takes nearly 3 years to get a patent, in certain areas of priority such as air pollution inventions, the Patent Office can process an application in 6 to 8 months. While this is admittedly a special area, it indicates that the patent system is not inherently incapable of more rapid operation. FORBES, March 15, 1973, at 14.

²⁸ 1969 PROCEEDINGS at P-12-13.

The Law Before Benson

Patent law offers a classification system for those items for which protection is available. The two classes into which a program theoretically could fall are the "process" category or, when combined with a computer, in the "machine" or apparatus category.²⁹ The Patent Office from 1966 to 1969 said that computer programs were not within the scope of these statutory classes and thus were unpatentable. In 1966 the Office proposed,³⁰ and in 1968 adopted, a set of guidelines which embodied its position that programs "whether defined in the form of process or apparatus, shall not be patentable."³¹ The basis for the Office's view was the judicially developed "mental steps" doctrine, discussed later, and an assumption that the statutory term "process" covered only such processes as produced physical transformation of substances, chemical alterations and similar changes in physical matter. The problem with classifying a program as patentable subject matter centered, the Office felt, around the program's *mathematical* nature. The Patent Office concluded that a process which *could* be performed by *purely mental operation* did not constitute patentable material since abstract "thought" is unpatentable. This was the rule, the Office believed, despite the fact that the process claimed in the patent application covered only a machine and not a mental implementation of the process. If the process could be carried out mentally it could not be patented even though the patent claim might cover only a machine's performance of the process.³² This "mental steps" rule is the result of a series of patent cases.³³ Two of the cases, *In re Abrams*³⁴ and *In re Yuan*³⁵ form the foundation for the Patent Office's analysis and clearly illustrate the "mental steps" rule.

In *Abrams*, the patent claims related to a method or process for

²⁹ "Whoever invents or discovers any new and useful process, machine, manufacture or composition, of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title." 35 U.S.C. § 101 (1970). "The term 'process' means process, art or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material." 35 U.S.C. § 100(b) (1970).

³⁰ 829 O.G. PAT. OFF. 1-3 (1966).

³¹ 855 O.G. PAT. OFF. 829, 830 (1968).

³² *Id.* See also Brenner, *The Future of Computer Programs in the U.S. Patent Office*, 1968 PROCEEDINGS at B-1. Brenner was Commissioner of Patents and outlines in his article the Patent Office viewpoint.

³³ Cases of importance to the Patent Office view include: *Oil Well Cementing Co. v. Walker*, 146 F.2d 817 (9th Cir. 1944); *Don Lee, Inc. v. Walker*, 61 F.2d 58 (9th Cir. 1932); *In re Abrams*, 188 F.2d 165 (C.C.P.A. 1951); and *In re Yuan*, 188 F.2d 377 (C.C.P.A. 1951).

³⁴ 188 F.2d 165 (C.C.P.A. 1951).

³⁵ 188 F.2d 377 (C.C.P.A. 1951).

petroleum prospecting. The claims were rejected on the ground that they failed to define a process covered within the patent statutes. In essence, the objection was that "the claims which constitute the heart of the invention are purely mental in character."³⁶ The problem was that the applicant disclosed no means for performing certain of the steps in the process except through human thought and analysis. The Court of Customs and Patent Appeals, in affirming the rejection, held to the view that a process, if it included "purely mental" steps performed only through human action, was unpatentable.

The *Yuan* case concerned a claim for a mathematical procedure for the construction of an airfoil. The Patent Office refused the claim since it constituted purely mental steps which did not fall within the scope of patentable material. The Court of Customs and Patent Appeals, in reviewing this rejection, examined closely the "mental steps" rule. The court concluded that it was thoroughly established that patent claims, such as *Yuan's*, which required human mental judgment and involvement, did not form patentable processes.³⁷ As a result of these cases, the Patent Office concluded that any process claims which could be read in such a manner as to include mental steps were outside statutory coverage and unpatentable. Hence, programs were not patentable.

Further, based upon the Supreme Court decision in the case of *Cochrane v. Deener*,³⁸ the Patent Office felt that the statutory term "process" referred only to processes operating on substances to produce some form of physical or chemical change. Since a computer program does not cause a substance to alter its physical character, the Patent Office concluded that it did not satisfy the *Cochrane* rule. The *Cochrane* case was an action based upon an alleged patent infringement. The patents in question concerned an improved process for sifting flour, the first claim being for the general process and the others for machinery improvements. The issue was whether the defendant infringed on the patents if he used different machinery to perform substantially the same process as that patented by the plaintiff. The Court, deciding that this constituted an infringement since the machinery employed to carry out the patented process was immaterial, discussed what constitutes a process:

A process is a mode of treatment of certain materials to produce a given result. It is an act or series of acts, performed upon the sub-

³⁶ *In re Abrams*, 188 F.2d 165 (C.C.P.A. 1951).

³⁷ *In re Yuan*, 188 F.2d 377, 380-82 (C.C.P.A. 1951).

³⁸ 94 U.S. 780 (1877).

ject matter to be transformed and reduced to a different state or thing.³⁹

Based upon this analysis, the Patent Office concluded that "intangible" processes could not be patented.⁴⁰

As to a patent claim for a program as part of an "apparatus" or machine, the Patent Office felt that if the *innovation* of the apparatus was in the program alone, then an apparatus patent had to be denied, based upon the "mental steps" doctrine. It would be improper, the Office asserted, to issue a patent on an apparatus which did no more than perform an unpatentable process.⁴¹ As a result, efforts to patent programs through apparatus claims, like process claims, were rejected by the Patent Office.

With its position clearly established, the Patent Office supported the 1967 effort to specifically exclude programs from patent coverage by way of legislative action.⁴² After a time however, the Commissioner of Patents relented and advanced the idea that, while patent protection was not open to computer programs, some new form of protection, structured especially for programs, was necessary.⁴³ The Patent Office's rejection of patent applications for computer programs was clearly not based solely on an analysis of patent law. While the Office favored some form of protection for software, it feared that to open the doors of patent protection to programs would injure the operation of the Patent Office. Again, the reason for this view was the anticipated difficulties in classifying, searching and investigating program applications without established files and records.⁴⁴

A series of cases beginning in 1969 brought the Patent Office's legal position under the scrutiny of the Court of Customs and Patent Appeals.⁴⁵ This court, advancing the view that programming could constitute a patentable process or apparatus, rejected the Patent Office's theories. The court thus opened the way to patent protection

³⁹ *Id.* at 788.

⁴⁰ 855 O.G. PAT. OFF. 829, 829-30 (1968).

⁴¹ *Id.* at 830.

⁴² See the testimony of Edward Brenner, the Commissioner of Patents, in *Hearings on S. 1042 Before the Subcomm. on Patents, Trademarks and Copyrights of the Senate Judiciary Comm.*, 90th Cong., 1st Sess., pt. 1, at 137 (1967).

⁴³ See Brenner's testimony in *Hearings on H.R. 5924 Before Subcomm. no. 3 of the House Comm. on the Judiciary*, 90th Cong., 2d Sess. 532 (1968). See also Brenner, *The Future of Computer Programs in the U.S. Patent Office*, 1968 PROCEEDINGS at B-1.

⁴⁴ PRESIDENT'S COMMISSION REPORT, *supra* note 23.

⁴⁵ *In re Foster*, 438 F.2d 1011 (C.C.P.A. 1971); *In re Musgrave*, 431 F.2d 882 (C.C.P.A. 1970); *In re Mahony*, 421 F.2d 742 (C.C.P.A. 1970); *In re Bernhart*, 417 F.2d 1395 (C.C.P.A. 1969); and *In re Prater*, 415 F.2d 1378 modified, 415 F.2d 1393 (C.C.P.A. 1969).

for programs. The first and most influential of the Court of Customs and Patent Appeals decisions came in a 1969 case, *In re Prater*.⁴⁶ The patent applicants in this case claimed they had developed processes and apparatus relating to computerized mass spectrographic analysis of a mixture of various known gases. The spectrograph is a trace or line consisting of a series of peaks. By selecting various peaks, deriving equations for each and solving for the unknown element, the proportions of the gases in the mixture can be determined. The patent claims set forth the applicants' discovery that the equations giving the most accurate results were those which had the largest determinant and also disclosed the necessary apparatus to carry the process through machine implementation—a computer.⁴⁷

The Patent Office, while acknowledging the novelty of the applicants' discovery, rejected the patent claims on the theory that the process claims did not comply with *United States Code*, Title 35, §§ 101 and 112 (1970) [hereinafter referred to as U.S.C.]. The objection was that the claimed processes could be performed by purely mental calculations and as such the processes constituted unpatentable "mental steps" under section 101.⁴⁸ The Patent Office concluded that it was irrelevant that the claimed processes were performed within a computer since they *could* be done mentally and did not involve any transformation of a substance.⁴⁹ The rejection was based upon concepts drawn from the *Abrams*, *Yuan* and *Cochrane* cases.⁵⁰

Further, the Patent Office said that even if it were assumed that such processes were within the scope of statutory coverage, the patent claims were still unacceptable, since by covering purely human thought processes in their parent claims, the applicants had failed to particularly point out and distinctly claim *only* the computer-implemented processes they claimed as their invention as required in section 112.⁵¹ The Office's view was that by including purely mental steps, which were unpatentable, the claims were not sufficiently specific although the applicants asserted they did not wish to patent anything other than the computer-implemented processes.⁵²

⁴⁶ 415 F.2d 1378 *modified*, 415 F.2d 1393 (C.C.P.A. 1969).

⁴⁷ *Id.* at 1395-98.

⁴⁸ 35 U.S.C. § 101 (1970).

⁴⁹ See text accompanying notes 30-41 *supra*.

⁵⁰ *Cochrane v. Denner*, 94 U.S. 780 (1877); *In re Abrams*, 188 F.2d 165 (C.C.P.A. 1951); *In re Yuan*, 188 F.2d 377 (C.C.P.A. 1951).

⁵¹ 35 U.S.C. § 112 (1970) provides:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

⁵² 415 F.2d at 1398-99.

Finally, the Patent Office refused the apparatus claim on the theory that given the applicants' unpatentable discovery, it would be obvious to any skilled programmer how to program a computer to perform the desired operations. The novelty of the apparatus was in the unpatentable process; and, as a result, the Patent Office felt that the machinery to carry out what could not be patented could not itself be covered by the patent law.⁵³

These rejections embodied all the essential elements of the theories upon which the Patent Office had established its policy toward applications for program patents. In the initial *Prater* decision,⁵⁴ by the Court of Customs and Patent Appeals, Judge Smith examined the substance of the Office's position and rejected it. The court first looked to the *Abrams* case and the development of the "mental steps" rule. In examining *Abrams*, the court concluded that the applicant's failure resulted from his inability to disclose any means, other than mental process, by which to perform several of the steps in the claimed process.⁵⁵ The *Prater* application was found to be significantly different, however, since it contained a disclosure of computer apparatus for performing the process claimed by the applicants *without* requiring any human intervention or involvement. The court stated:

This distinction from *Abrams* leads us to our present holding which is that patent protection for a process disclosed as being a sequence or combination of steps, capable of performance without human intervention and directed to an industrial technology—a "useful art" within the intendment of the Constitution—is not precluded [from statutory coverage] by the mere fact that the process could alternatively be carried out by mental steps.⁵⁶

The court said that with regard to processes which did not require human involvement that it could "[f]ind nothing to indicate an intent of Congress or the courts to deny patent protection to process claims merely because they could alternatively be read on a process performed through the mind. . . ."⁵⁷ The court thus distinguished earlier rulings such as *Abrams* and rejected the Patent Office's conclusions founded on these cases.

Secondly, the court examined the *Cochrane* case and the theory that a statutory process has to deal with physical substances.⁵⁸ Judge

⁵³ *Id.* at 1399.

⁵⁴ *In re Prater*, 415 F.2d 1378 (C.C.P.A. 1969).

⁵⁵ *Id.* at 1385.

⁵⁶ *Id.* at 1389.

⁵⁷ *Id.*

⁵⁸ See text accompanying notes 38-40 *supra*.

Smith asserted that *Cochrane* did not establish any rule concerning what constitutes a statutory process.⁵⁹ That case, in his view, did no more than demonstrate that a process patent was not restricted to any particular machinery. In other decisions, the Supreme Court had, he felt, clearly indicated that processes not producing any physical alterations were patentable.⁶⁰

Two Supreme Court decisions of particular significance in relation to whether a patentable process must operate to produce physical transformation are *O'Reilly v. Morse*⁶¹ and *The Telephone Cases*.⁶² Each of these cases dealt with *electrical* processes producing no physical or chemical alterations as such. The *Morse* case concerned an alleged infringement of Samuel Morse's telegraph patent. His first patent claim was for the use of electricity for the purpose of telegraphic communication in the manner set forth in the description of the invention.⁶³ The Court sustained the patent claim since it did not cover in general the communicative use of electricity but was limited to a particular manner of using it. The Court did not mention the fact that the process claimed by Morse produced no transformation of a physical substance. While finding most of Morse's patent claims valid, the Court did reject his eighth claim, finding that it read so broadly as to cover all uses of electricity as a communicative force beyond those uses outlined in the description of the invention. The conclusion was that this claim was too broad and inclusive to be permitted by law since it would, in effect, give Morse a patent on the communicative use of electricity and thus inhibit future discoveries.⁶⁴

The Telephone Cases dealt with Alexander Bell's patent on the telephone. The infringement controversy centered on his fifth patent claim which was for the method and apparatus for telephone communication.⁶⁵ The Court concluded that the *Morse* decision supported Bell's claims. As long as the use of electricity for communication was implemented through a particular process, that *process* could be patented.⁶⁶ While it might eventually result that there was no other method of employing electricity to transmit sound than Bell's process, the Court felt that his claims were clear enough not to discourage future invention in this area and were thus allowable.⁶⁷ Again, al-

⁵⁹ 415 F.2d at 1387-88.

⁶⁰ *Id.* at 1388.

⁶¹ 56 U.S. (15 How.) 62 (1853).

⁶² 126 U.S. 1 (1887).

⁶³ 56 U.S. at 85.

⁶⁴ *Id.* at 112-13.

⁶⁵ 126 U.S. at 531.

⁶⁶ *Id.* at 534.

⁶⁷ *Id.* at 535.

though the claimed process did not involve physical transformation, this was no bar to its inclusion within the statutory classes provided in the patent laws. As a result of such prior decisions, the Court of Customs and Patent Appeals in *Prater* overturned the Patent Office view, based primarily upon the *Cochrane* case, that a patentable process has to produce a physical change of substance or form.

Lastly, as to the apparatus claim, the court in *Prater* concluded that the "mental steps" rule was inapplicable. The court further said that a test of "obviousness" could not be based upon the idea that, given the applicants' discovery, any skilled programmer could formulate a program to perform the operation. *Without* the discovery the program would not be obvious, and the test had to be based upon obviousness at the time of the discovery.⁶⁸

This decision caused consternation within the Patent Office since it rejected the basic elements of the Office's position regarding computer programs. An application for rehearing was filed. The court accepted the application and proceeded to modify its original decision.⁶⁹ The modification, however, did not alter the basic tenets of Judge Smith's opinion.

In its decision on rehearing, the court reiterated its previous analysis of the "mental steps" rule as not precluding from statutory classification a process described as fully machine implementable even though the process could in some form be performed mentally. The court also approved Judge Smith's evaluation of the *Cochrane* decision and his finding that processes not involving physical alterations could be patented.⁷⁰

However, while upholding this *analysis*, the court reversed its *decision* and rejected the applicants' process claims. The reasoning behind this was that while the applicants sought only to patent a computer process, the patent claims were stated in such a manner as to include human mental steps. The claims were thus not specific and distinct within the meaning of U.S.C., Title 35, § 112.⁷¹ While rejecting the patent claims as too broad, it is most important to note that the court did reaffirm its earlier views. Most importantly, the court stated in a footnote:

No reason is now apparent to us why, based on the Constitution, statute, or case law, apparatus and process claims broad enough to encompass the operation of a programmed general-purpose digital

⁶⁸ 415 F.2d at 1389, 1405-06.

⁶⁹ *In re Prater*, 415 F.2d 1393 (C.C.P.A. 1969).

⁷⁰ *Id.* at 1401-06.

⁷¹ *Id.* at 1403-05.

computer are necessarily unpatentable. In one sense a general-purpose digital computer may be regarded as but a storeroom of parts and/or electrical components. But once a program has been introduced, the general-purpose digital computer becomes a special-purpose digital computer (i.e., a specific electrical circuit with or without electro-mechanical components) which, along with the process by which it operates, may be patented subject, of course, to the requirements of novelty, utility, and non-obviousness. Based on the present law, we see no other reasonable conclusion.⁷²

The court accepted here the view of programs as "instant hardware" or "softwiring"⁷³ and as such included them within the statutory classifications of process or apparatus.

The initial result of this decision was that the Patent Office withdrew the guidelines it had issued concerning programs and elected to deal with programs on a case by case basis.⁷⁴ The Commissioner of Patents indicated that due to the decision the Patent Office would consider patent applications for programs on the basis of the merits of the particular invention claimed, rather than refusing consideration for such claims based upon the theories discarded in *Prater*.⁷⁵

Reaction to the decisions was mixed. It was hailed as "the turning point in the development of the patent law as it is applied to the subject of digital computer programming," which had "inaugurated a new era in the patenting of data processing inventions."⁷⁶ Many found the court's analysis of the law good and supported its general views.⁷⁷ The understanding was that, while patent coverage for programs might result in operational difficulties for the Patent Office, such problems were matters of legislative rather than judicial concern and that in terms of present law, patent protection for programs should be available. Others felt that the decision was too broad in scope and saw it as forecasting considerable difficulty for the Patent

⁷² *Id.* at 1403 n.29.

⁷³ See text accompanying notes 6-9 *supra*.

⁷⁴ 34 Fed. Reg. 15724 (1969).

⁷⁵ Schuyler, *Protecting Property in Computer Software*, 1969 PROCEEDINGS at H-1, H-3.

⁷⁶ Nimtz, *The Patentability of Computer Programs*, 1970 RUTGERS J. OF COMPUTERS AND THE LAW 38, 40, 42.

⁷⁷ Brothers & Gumaldi, *In re Prater and Patent Reform Proposals: Debugging the Patent Office's Administration of Computer Program Applications*, 51 J. PAT. OFF. SOC'Y 581 (1969); Jacobs, *Computer Technology (Hardware and Software): Some Legal Implications for Antitrust, Copyrights and Patents*, Fall 1970 RUTGERS J. OF COMPUTERS AND THE LAW 50; Sutton, *The 'Mental Steps' Doctrine: A Critical Analysis in the Light of Prater and Wei*, 52 J. PAT. OFF. SOC'Y 479 (1970); Comment, *Mathematics, Computers and In re Prater: The Medium and the Message*, 58 GEO. L.J. 391 (1969).

Sutton, in his lengthy and excellent examination of the "mental steps" rule concludes that the C.C.P.A. decision in *Prater* was a very good decision, correctly limiting the "rule." Sutton, *supra* at 520-21.

Office in classifying, researching and verifying patent applications for programs.⁷⁸

The *Prater* ruling was followed by a line of patent cases in which the Court of Customs and Patent Appeals developed and expanded its analysis of the "mental steps" doctrine.⁷⁹ The Patent Office had considered the entire series of patent applications which were the subjects of these cases prior to the *Prater* decision and had in its rejections followed the basic analysis employed when it had rejected the application of *Prater*. While this series of decisions by the Patent Appeals court is of considerable importance, an examination of each ruling would be outside the scope of this paper. Certain important points should be noted however. The *Musgrave* case⁸⁰ went beyond *Prater* in its rejection of the "mental steps" rule. The court no longer required that a process, to be considered within the statutory scope of patentability, be machine implementable, as long as it was within the "technological arts." The decision also required a patent applicant to disclose less information about his invention than previously was required. A number of authorities have been critical of these changes.⁸¹ Another important development in this series of cases was that the Court of Customs and Patent Appeals reached the conclusion that claims had to be read in terms of what they reasonably might cover considering the wording used and not in terms of what they might cover with a hyper-technical reading.⁸²

By the time the Patent Appeals court heard the *Benson* case⁸³ it had discarded the theories upon which the Patent Office had rejected the application of *Benson* and *Tabbot*. What made their patent application unique, however, was that the process they claimed in their application specifically covered only a computer *program*. While the earlier series of cases dealt with the use of a program to perform specific industrial or scientific functions, the *Benson* application was "the first . . . in which a program for a computer was clearly disclosed and claimed as the invention."⁸⁴

⁷⁸ Buckman, *supra* note 3.

⁷⁹ *In re Foster*, 438 F.2d 1011 (C.C.P.A. 1971); *In re Musgrave*, 431 F.2d 882 (C.C.P.A. 1970); *In re Mahony*, 421 F.2d 742 (C.C.P.A. 1970); *In re Bernhart*, 417 F.2d 1395 (C.C.P.A. 1969).

⁸⁰ *In re Musgrave*, 431 F.2d 882 (C.C.P.A. 1970).

⁸¹ Iandioro, *Which Wei Did They Go?*, 53 J. PAT. OFF. SOC'Y 712 (1971); ABA 1971 COMM. REPORTS, SEC. OF PATENTS, TRADEMARK AND COPYRIGHT LAW, COMM. NO. 408, SUBCOMM. C, 277.

⁸² *In re Mahony*, 421 F.2d 742 (C.C.P.A. 1970).

⁸³ *In re Benson*, 441 F.2d 682 (C.C.P.A. 1971).

⁸⁴ Iandioro, *supra* note 81, at 712.

The Benson Case

In 1963, Gary Benson and Arthur Tabbot filed an application for a patent claiming a method for converting binary-coded decimal numerals into pure binary numerals in a general purpose digital computer.⁸⁵ Benson and Tabbot had discovered a method for performing this operation within a computer and claimed a machine-implemented process for utilizing their discovery.⁸⁶ This computer process was not directed to any particular industrial operation but consisted essentially of a programming technique designed to enhance the operation of the computer as it might be employed for *any* practical purpose.

The Patent Office rejected the claims based upon one theory—that being performable through mental calculation, they were outside the limits of patentability.⁸⁷ Though not part of the original rejection, the Patent Office also attempted on appeal to justify rejection of the patent application on the theory that it lacked the necessary specificity. The Court of Customs and Patent Appeals, however, found the patent claims within the statutory classification *and* sufficiently specific.

Citing *Prater* and several subsequent cases, the court noted the unique nature of the claims in this case. "The claims . . . are directed solely to the art of data-processing itself whereas in most of the above cases some subsidiary or additional art was involved."⁸⁸ What was significant, the judges felt, was that "[a]ll of the above cases and the present case have in common . . . the fact that they are the outgrowth of a blanket Patent Office policy. . . . The decision here for review is a typical product of its time."⁸⁹ The Patent Office had refused the claims prior to the *Prater* ruling and had based its position on theories which had been discarded in that case.

The controversy on appeal centered specifically on two of the

⁸⁵ Most computers perform their operations using binary numerals, a system of representation using only 1 or 0 in contrast to the decimal system based on ten numerical representations. It is necessary, in utilizing the computer, to convert from decimal notation to the binary form. The general practice is to make this conversion in two steps. First the decimal numeral is converted to a binary-coded-decimal (BCD), a decimal notation in which the individual decimal digits are each represented by a group of binary digits, *e.g.*, 75 is represented by 0111 0101. Then the BCD form is converted to a pure binary form of notation. It is to this second step of the conversion process that Benson and Tabbot's discovery related.

⁸⁶ 441 F.2d at 682-84.

⁸⁷ *Id.* at 684-85.

⁸⁸ *Id.* at 686.

⁸⁹ *Id.*

patent claims, the eighth and the thirteenth.⁹⁰ The court felt that the eighth claim, by its own clear language, was specifically limited to a computer-implemented process. It was irrelevant that in some form the human mind *might* be capable of performing a similar process. Judge Rich, speaking for a unanimous court, expressed the view that the only reasonable way to read the claim was as applied to a digital computer. The eighth claim ". . . covers only a machine implemented process and apparatus for carrying it out has been disclosed. The process can be carried out with no intervention by a human being."⁹¹ The court also rejected the contention that the claimed process was "mental" in character since it dealt with numerical representations. "Cash registers, bookkeeping machines, and adding machines also work with numbers but this has never been considered a ground for taking them out of the 'machine' category of section 101."⁹²

⁹⁰ Claim eight reads:

The method of converting signals from binary coded decimal form into binary which comprises the steps of

- (1) storing the binary coded decimal signals in a reentrant shift register,
- (2) shifting the signals to the right by at least three places, until there is a binary "1" in the second position of said register,
- (3) masking out said binary "1" in said second position of said register,
- (4) adding a binary "1" to the first position of said register,
- (5) shifting the signals to the left by two positions,
- (6) adding a "1" to said first position, and
- (7) shifting the signals to the right by at least three positions in preparation for a succeeding binary "1" in the second position of said register. *Id.* at 683.

Claim thirteen reads:

A data processing method for converting binary coded decimal number representations into binary number representations comprising the steps of

- (1) testing each binary digit position *i*, beginning with the least significant binary digit position, of the most significant decimal digit representation for a binary "0" or a binary "1";
- (2) if a binary "0" is detected, repeating step (1) for the next least significant binary digit position of said most significant decimal digit representation;
- (3) if a binary "1" is detected, adding a binary "1" at the (*i* + 1)th and the (*i* + 3)th least significant binary digit positions of the next lesser significant decimal digit representation and repeating step (1) for the next least significant binary digit position of said most significant decimal digit representation;
- (4) upon exhausting the binary digit positions of said most significant decimal digit representation, repeating steps (1) through (3) for the next lesser significant decimal digit representation as modified by the previous execution of steps (1) through (3); and
- (5) repeating steps (1) through (4) until the second least significant decimal digit representation has been so processed. *Id.* at 683-84.

⁹¹ 441 F.2d at 687.

⁹² *Id.*

Secondly, the court examined the rejection of the thirteenth claim, which unlike the eighth claim, contained no specific reference to any machine apparatus. The court said, however, that the claim had to be read in light of the supporting disclosure of a digital computer system.⁹³ The thirteenth claim indicated that the outlined steps could be performed in a computer without any human intervention. Literally, however, the claim called for no particular apparatus and thus, "the method within the claim can be practiced with apparatus other than that described or with the simplest of equipment which will enable one to provide and to manipulate [the numbers]"⁹⁴—including a pencil and paper. In theory then the claim *could* cover mental steps, but the court felt that the claimed process, in fact, had no *practical* use other than as performed in a computer. Additionally, while the process might be performed manually, the court felt that it required no actual human judgment to follow the enumerated steps. The judges concluded that the thirteenth claim was within the scope of statutory coverage as a technological process not precluded by a need for human involvement.⁹⁵

In its decision, the court, while admitting the unique nature of the particular patent claims, upheld the claims by operating on its own previously established analysis. The Patent Office, anxious for a Supreme Court determination of the issue of the patentability of computer programs filed a petition for writ of certiorari in October 1971. In February 1972, the petition was granted,⁹⁶ although there was some question as to whether the case was a proper one for the Court's consideration since it was concerned with the "mental steps" rule alone, an issue long settled by the Court of Customs and Patent Appeals and now generally accepted.⁹⁷

The Court was asked to rule on two issues. The first was the narrow question of the patentability of the particular process claimed by Benson and Tabbot.⁹⁸ Secondly, the Court was asked to rule on the broader issue of whether computer programs constitute patentable subject matter.⁹⁹ In its brief to the Court, the Patent Office argued that the steps of the claimed process were unpatentable as they constituted no more than a set of mental steps for performing a mathe-

⁹³ *Id.*

⁹⁴ *Id.* at 688.

⁹⁵ *Id.*

⁹⁶ *Cert. granted*, 405 U.S. 915.

⁹⁷ *Iandioro*, *supra* note 81.

⁹⁸ Brief for Petitioner at 2, *Gottschalk v. Benson*, 409 U.S. 63 (1972).

⁹⁹ *Jacobs, Patents for Software Inventions—the Supreme Court's Decision*, 55 J. PAT. OFF. SOC'Y 59 (1973).

mathematical procedure.¹⁰⁰ It was well established, the Patent Office asserted, that mere ideas and principles are unpatentable—only the “pragmatic application of ideas” in the form of “tangible machines, articles of manufacture, chemical and other physical compositions and processes for making or using such machinery, articles of manufacture and compositions” could be patented.¹⁰¹ As to Benson’s and Tabbot’s claims, they were nothing more than “a sequence of mathematical steps . . . [which] differ only in some respects from the mental steps that an ordinary human being could be expected to follow.”¹⁰²

Secondly, the Patent Office asserted that the patent claims were too broad in their nature to be patentable. It argued that the claims were:

so abstract and sweeping as to cover any and all known and unknown purposes or uses for this method for BCD-to-pure binary conversion. Whether in the operation of a telephone, a railroad train, a customer-operated cash withdrawal banking system or shepardizing law reports, and whether carried out by means of any presently known or future devised machinery. By seeking to claim their mathematical procedure without limitation as to end use or apparatus, respondents have placed themselves outside the statute.¹⁰³

The Patent Office urged that the *Morse* case and *The Telephone Cases* established the rule that if a particular process did not involve a physical alteration of a substance, but rather dealt with “intangible entities”, such a process, to be patentable, had to be restricted: (1) to a specific field of technology, and (2) to a particular type of apparatus.¹⁰⁴ Because the process claimed by Benson and Tabbot was not limited to any particular end use other than “data-processing” or to any specific apparatus except a “digital computer” it was, in the view of the Patent Office, unpatentable under the rule implicitly set forth in *Morse* and the *Telephone Cases*.¹⁰⁵

Thirdly, the Patent Office claimed that the programming of a computer was no more than a conventional and unpatentable use of a known machine, much like placing a new piano roll in a player piano. As such, no “new use” was involved in the process claimed; rather it was a standard use of the computer [which itself remained unchanged] to achieve merely a new result.¹⁰⁶

¹⁰⁰ Brief for Petitioner at 17.

¹⁰¹ *Id.* at 19.

¹⁰² *Id.* at 20.

¹⁰³ *Id.* at 21-22.

¹⁰⁴ *Id.* at 22-24. See also Reply Brief for the Petitioner at 8-11.

¹⁰⁵ Reply Brief for the Petitioner at 9-11.

¹⁰⁶ Brief for the Petitioner at 26.

Lastly, it was argued that to allow computer programs to be patentable "would tend to undermine the present patent system because the claims in this area cannot be adequately classified and searched."¹⁰⁷ The Patent Office acknowledged that one of the reasons for denying patent coverage to programs was that, because of the great amount of prior art in the field and because of the lack of files on this previous work, to allow patent protection would cause significant search and classification difficulties in the Office's operation.

These arguments were not new, except for the assertion that a rule had been established requiring end-use and apparatus limitations on processes involving intangible entities. This particular argument becomes important in the Supreme Court's final disposition of the case. As to the "piano roll" analogy, the Court apparently rejected this concept and held to the view that a program constituted a "soft-wiring" or restructuring of the computer.¹⁰⁸

The basic line of the respondents' contentions was that their process was a machine-implemented electrical process and that they had "never sought to claim the mathematical relationship or technique they discovered but only the particular machine process they derived from the mathematical discovery."¹⁰⁹

As to the petitioner's argument that the patent claims did not conform to the rule that intangible processes be restricted as to end use and apparatus, the respondents' reply was that the government's argument was without substance. Their claims, the respondents asserted, were:

confined to a process which is effected in a particular type of apparatus (an electrical data processing machine), which falls within a particular field of technology (data processing) and which has a particular end use (conversion of BCD signals to binary signals). The authorities petitioner cites—cases involving patent claims relating to the telegraph and the telephone—do not impose the narrow restrictions advanced by petitioner but in fact uphold patent claims far broader than those involved here.¹¹⁰

The respondents contended that the substance of the Patent Office's argument concerning the need for specific limitations in patent claims involving intangible elements was "founded on a misstatement of the applicable law" and that *Morse* and *The Telephone Cases* did not stand for any rule demanding end-use or apparatus limitations on

¹⁰⁷ *Id.* at 30.

¹⁰⁸ Jacobs, *supra* note 99, at 60. Jacobs indicates that during oral argument the Court stated that it found the "piano roll" analogy unacceptable.

¹⁰⁹ Brief for the Respondents at 13.

¹¹⁰ *Id.*

claims such as theirs. While asserting that their claims in any case met these unfounded requirements, the respondents argued that the applicable rule was that there did not have to be limitation to a preferred apparatus, technological field or end-use in *any* process claimed for patent protection.¹¹¹

The answer to the Patent Office's mental steps argument was that the process claim was computer-implemented and as such not precluded from patent protection by the sort of mental steps rules rejected in the *Prater* case.¹¹² Finally, the respondents asserted that their process, being technological in nature, was appropriate for patent law coverage and as a result should not be excluded from the system due to any supposed difficulty this would cause for the Patent Office.¹¹³

Having heard the arguments of each party, the Supreme Court proceeded to come to a decision which reversed the process claims of Benson and Tabbot.¹¹⁴ Justice Douglas wrote the opinion in which Justices Stewart, Blackmun and Powell did not participate. While Justice Douglas did reject the patent claims of Benson and Tabbot, his opinion is best characterized as a limited and cautious decision, in which he was careful to avoid ruling on broad questions.

Justice Douglas stated initially that the pivotal issue of the case was, "whether the method described and claimed is a 'process' within the meaning of the Patent Act."¹¹⁵ The opinion follows the line of reasoning advanced by the Patent Office that the process, in not being limited as to end use, apparatus or to a particular technological field, is unpatentable. Looking to both *Morse* and the *Telephone Cases*, Justice Douglas stated:

Here the "process" claim is so abstract and sweeping as to cover both known and unknown uses of the BCD to pure binary conversion. The end use may (1) vary from the operation of a train to verification of drivers' licenses to researching the law books for precedents and (2) be performed through any existing machine or future-devised machine or without any apparatus.¹¹⁶

Justice Douglas concurred in the Patent Office's view which distinguished processes working physical transformations and those dealing with so-called "intangible entities" such as electricity. Citing the cases discussed by Judge Smith in the *Prater* opinion, which

¹¹¹ *Id.* at 26-29. The respondents contended that the only end limitations in either Morse's or Bell's claims were to the invention's use for "communication", certainly as broad, they felt, as a limitation to the use for "data processing".

¹¹² *Id.* at 16-21.

¹¹³ *Id.* at 14-15.

¹¹⁴ 409 U.S. at 63.

¹¹⁵ *Id.* at 64.

¹¹⁶ *Id.* at 63.

rejected the idea that a process, to be patentable, had to deal with substantial physical alterations, Justice Douglas apparently concluded that while a process may deal with items other than physical transformations, only tangible processes producing physical changes of substance do not require specific end-use and apparatus limitations, while "intangible" processes do require such restrictions.¹¹⁷ Reflecting this idea, he stated, "Transformation and reduction of an article 'to a different state or thing' is the clue to the patentability of a process claim that does not include particular machines."¹¹⁸ The implication of this statement was that a process not involving "transformation and reduction" must include particular machinery and end-use restrictions.

Having rejected the patent claims because they were too broad, Justice Douglas proceeded to limit the ruling. He made it clear that the decision was only meant to provide a resolution of the issues in this particular case and that the Court declined to rule on the broader issue of whether programming constituted patentable subject matter.¹¹⁹ Further, he did not mention the *Prater* decision or other Court of Customs and Patent Appeals rulings concerned with the issues of computer program patentability. In not doing so, it would appear he preserved—at least in part—the analysis set forth in these decisions, allowing for patent protection for programs connected with particular industrial or technological uses.¹²⁰ Lastly, Justice Douglas clearly stated that it was a congressional responsibility to deal with the problem of legal protection for programs. He acknowledged the search, classification and prior art difficulties which the Patent Office could face and stated:

If these programs are to be patentable, considerable problems are raised which only committees of Congress can manage, for

¹¹⁷ *Id.* at 69-70. The cases cited by both Douglas and Smith include: *Waxham v. Smith*, 294 U.S. 20 (1935); *Smith v. Snow*, 294 U.S. 1 (1935); *Tilgham v. Proctor*, 102 U.S. 707 (1880). In addition Douglas discusses: *Expanded Metal Co. v. Bradford*, 214 U.S. 366 (1908) and *Coming v. Burden*, 56 U.S. (15 How.) 252 (1854).

¹¹⁸ 409 U.S. at 70.

¹¹⁹ *Id.* at 71.

We do not hold that no process patent could ever qualify if it did not meet the requirements of our prior precedents. It is said that the decision precludes a patent for any program servicing a computer. We do not so hold. It is said that we have before us a program for a digital computer but extend our holding to programs for analog computers. We have, however, made clear from the start that we deal with a program only for digital computers. It is said we freeze process patents to old technologies, leaving no room for revelations of the new, onrushing technology. Such is not our purpose.

Some fear had been expressed prior to the decision that the Court might write a sweeping and general opinion. ABA 1973 COMM. REPORTS; SEC. OF PATENT, TRADEMARK AND COPYRIGHT LAW; COMM. NO. 408, SUBCOMM. C, 249, 253.

¹²⁰ Jacobs, *supra* note 99.

broad powers of investigation are needed, including hearings which canvas the wide variety of views which those operating in this field entertain. The technological problems tendered in the many briefs before us indicate to us that considered action by the Congress is needed.¹²¹

In calling for a legislative resolution of this problem, Justice Douglas chose what appears now to be the only practical solution to this controversy, given the wide range of divergent legal and policy arguments.

The reactions to the decision have been mixed. Morton Jacobs expresses the view that the ruling is good in that it leaves intact the earlier decisions of the Patent Appeals court and refuses to declare that software in general is unpatentable. He sees the decision as a defeat for those who have for some time attempted to get a ruling that computer programs are unpatentable.¹²² In contrast, *Computer-world* expresses the conclusion that the decision is a defeat for the software industry. "In many ways the decision is seen as a victory for the mainframe makers industry . . . and a definite setback for large users and the software industry."¹²³

While the careful limitations of the decision, discussed above, lend some support to the Jacobs viewpoint, there remains some difficulty in accepting the basis of Justice Douglas' opinion as to the particular issues in the case—something which Jacobs does not discuss. With no apparent legal basis other than the petitioner's contentions, the Court seemed to accept the idea that end-use and apparatus limitations are required in patent claims concerned with "intangible entities", but not in process claims dealing with physical alterations of substances. This would seem to be a new rule of law, yet the decision does not really outline the source, meaning or limits of the rule.

Post-Benson Development

The key questions now become if, how and when Congress will act with regard to legal protection for computer programs. A previous effort was made to legislatively exclude programs from patent coverage, but the effort failed due to considerable protest from various quarters.¹²⁴ Now, after some judicial consideration, the problem returns to

¹²¹ 409 U.S. at 73.

¹²² Jacobs, *supra* note 99, at 60.

¹²³ *COMPUTERWORLD*, Nov. 29, 1972, at 4, col. 3. In the next issue, the opinion was that the Court's decision was more *confusing* than anything else. *COMPUTERWORLD*, Dec. 6, 1972 at 47, col. 2.

¹²⁴ S. 1042, 90th Cong., 1st Sess. Sec. 106 (1967); H.R. 5924, 90th Cong., 1st Sess. Sec. 106 (1967).

Congress for a final resolution. One significant problem now may be that the large hardware manufacturers such as IBM, which have consistently opposed patent protection for software,¹²⁵ might be able to convince Congress to accept some special protection plan which reflects their opposition toward protection. One such plan, the 1968 "IBM Proposal," is based upon a program registration system which would allow protection of a basic program for ten years.¹²⁶ The IBM plan requires full disclosure of the concepts involved in the particular program to be protected such that a skilled programmer could develop substantially the same program as that registered. Most significantly, the plan requires the deposit of this "conceptual description" with the Patent Office and provides that it be available to anyone for immediate use (or after a short period) without his paying any compensation. While the system would prohibit duplication or unlawful use of the registered program itself, by means of the "conceptual description" provisions, the system grants no protection for the ideas upon which the program invention is based.

Reaction to this proposal has been unfavorable, largely because it fails to offer the sort of protection required by the software industry.¹²⁷ The real need, most authorities feel, is to formulate a new plan more in line with the requirements of program manufacturers and users.¹²⁸

Since there is so much conflict as to the applicability and adequacy of the present patent laws to properly deal with software protection, a congressional resolution devising a system specifically tailored to computer programs would be appropriate. Whatever form the system might take, it should be designed to adequately serve the needs of the software business, to protect its investments and to encourage growth and innovation. The system should be geared to keep pace with rapidly developing innovations in programming and should seek to insure the optimum use of the now limited programming resources. There is no reason why Congress cannot formulate such a plan—in other areas such as protection for phonograph records, it has recently done so.¹²⁹ It would seem that computer programs, considering their

¹²⁵ Jacobs, *supra* note 99.

¹²⁶ For an outline of the "IBM Proposal" and a critical analysis thereof, see 1970 ABA COMM. REPORTS; SEC. OF PATENT, TRADEMARK AND COPYRIGHT LAW; COMM. NO. 408, SUBCOMM. C, 20.

¹²⁷ *Id.*

¹²⁸ COMPUTERWORLD, Dec. 6, 1972 (editorial) at 10, col. 1.

¹²⁹ In 1971 Congress, due to the extensive "pirating" of sound recordings, amended Title 17 of the *United States Code* to provide a special form of copyright protection for recordings. 17 U.S.C.A. §§ 1(f), 5(n), 19, 20, 26, 101(e) (Supp. 1973).

economic significance, are deserving of at least equal congressional attention.

Finally, the impact of the Supreme Court's decision on future rulings by the Court of Customs and Patent Appeals is uncertain. Due to the limited nature of the Court's ruling, it would seem that patent protection for computer programs relating to specific industrial, technological or scientific processes and end-uses may still be available provided that the patent claims are drafted to properly conform to the requirements set forth in *Benson*. For the answers to these questions however, one can only wait for future judicial pronouncements.

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